



## Complete Summary

---

### TITLE

Esophageal resection: volume.

### SOURCE(S)

AHRQ quality indicators. Guide to inpatient quality indicators: quality of care in hospitals - volume, mortality, and utilization [version 3.1]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2007 Mar 12. 91 p.

AHRQ quality indicators. Inpatient quality indicators: technical specifications [version 3.2]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2008 Feb 29. 37 p.

## Measure Domain

### PRIMARY MEASURE DOMAIN

Structure

The validity of measures depends on how they are built. By examining the key building blocks of a measure, you can assess its validity for your purpose. For more information, visit the [Measure Validity](#) page.

### SECONDARY MEASURE DOMAIN

Outcome

## Brief Abstract

### DESCRIPTION

This measure is used to assess the raw volume of provider-level esophageal resection (surgical procedure).

As a volume indicator, esophageal resection is a proxy measure for quality and should be used with other indicators.

### RATIONALE

About 30% of personal health care expenditures in the United States go towards hospital care, and the rate of growth in spending for hospital services has only recently leveled out after several years of increases following a half a decade of

declining growth. Simultaneously, concerns about the quality of health care services have reached a crescendo with the Institute of Medicine's series of reports describing the problem of medical errors and the need for a complete restructuring of the health care system to improve the quality of care. Policymakers, employers, and consumers have made the quality of care in U.S. hospitals a top priority and have voiced the need to assess, monitor, track, and improve the quality of inpatient care.

Esophageal surgery is a rare procedure that requires technical proficiency; and errors in surgical technique or management may lead to clinically significant complications, such as sepsis, pneumonia, anastomotic breakdown, and death. Higher volumes have been associated with better outcomes, which represent better quality.

**Note:**

The following caveats were identified from the literature review for the "Esophageal Resection Volume" indicator:

- *Proxy<sup>b</sup>*: Indicator does not directly measure patient outcomes but an aspect of care that is associated with the outcome; thus, it is best used with other indicators that measure similar aspects of care.
- *Easily manipulated<sup>a</sup>*: Use of the indicator may create perverse incentives to improve performance on the indicator without truly improving quality of care.

Refer to the original measure documentation for further details.

**a** - The concern is theoretical or suggested, but no specific evidence was found in the literature.

**b** - Indicates that the concern has been demonstrated in the literature.

## **PRIMARY CLINICAL COMPONENT**

Esophageal resection; procedure volume

## **DENOMINATOR DESCRIPTION**

This measure applies to providers of esophageal resection (one provider at a time).

## **NUMERATOR DESCRIPTION**

Discharges, age 18 years and older, with International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) codes of 424, 4240-4242, 425, 4251-4256, 4258-4259, or 426, 4261-4269 in any procedure field

Exclude cases:

- Major Diagnostic Category (MDC) 14 (pregnancy, childbirth, and puerperium)
- MDC 15 (newborns and other neonates)

## Evidence Supporting the Measure

### EVIDENCE SUPPORTING THE CRITERION OF QUALITY

- One or more research studies published in a National Library of Medicine (NLM) indexed, peer-reviewed journal

## Evidence Supporting Need for the Measure

### NEED FOR THE MEASURE

Variation in capacity

### EVIDENCE SUPPORTING NEED FOR THE MEASURE

AHRQ quality indicators. Guide to inpatient quality indicators: quality of care in hospitals - volume, mortality, and utilization [version 3.1]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2007 Mar 12. 91 p.

## State of Use of the Measure

### STATE OF USE

Current routine use

### CURRENT USE

External oversight/State government program  
Internal quality improvement  
Quality of care research

## Application of Measure in its Current Use

### CARE SETTING

Hospitals

### PROFESSIONALS RESPONSIBLE FOR HEALTH CARE

Physicians

### LOWEST LEVEL OF HEALTH CARE DELIVERY ADDRESSED

Single Health Care Delivery Organizations

### TARGET POPULATION AGE

Does not apply to this measure

## **TARGET POPULATION GENDER**

Does not apply to this measure

## **STRATIFICATION BY VULNERABLE POPULATIONS**

Does not apply to this measure

### **Characteristics of the Primary Clinical Component**

## **INCIDENCE/PREVALENCE**

Most facilities perform 10 or fewer esophagectomies for cancer during a 5-year period; therefore, this indicator is expected to have poor precision; however, relatively strong relationships between volume and outcome -- specifically postoperative mortality -- have been noted in the literature.

## **EVIDENCE FOR INCIDENCE/PREVALENCE**

AHRQ quality indicators. Guide to inpatient quality indicators: quality of care in hospitals - volume, mortality, and utilization [version 3.1]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2007 Mar 12. 91 p.

## **ASSOCIATION WITH VULNERABLE POPULATIONS**

Unspecified

## **BURDEN OF ILLNESS**

Unspecified

## **UTILIZATION**

Unspecified

## **COSTS**

Unspecified

### **Institute of Medicine National Healthcare Quality Report Categories**

## **IOM CARE NEED**

Not within an IOM Care Need

## **IOM DOMAIN**

Not within an IOM Domain

## Data Collection for the Measure

### **CASE FINDING**

Does not apply to this measure

### **DENOMINATOR SAMPLING FRAME**

Does not apply to this measure

### **DENOMINATOR INCLUSIONS/EXCLUSIONS**

#### **Inclusions**

This measure applies to providers of esophageal resection (one provider at a time).

#### **Exclusions**

Unspecified

### **RELATIONSHIP OF DENOMINATOR TO NUMERATOR**

Does not apply to this measure

### **DENOMINATOR (INDEX) EVENT**

Does not apply to this measure

### **DENOMINATOR TIME WINDOW**

Does not apply to this measure

### **NUMERATOR INCLUSIONS/EXCLUSIONS**

#### **Inclusions**

Discharges, age 18 years and older, with International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) codes of 424, 4240-4242, 425, 4251-4256, 4258-4259, or 426, 4261-4269 in any procedure field

#### **Exclusions**

Exclude cases:

- Major Diagnostic Category (MDC) 14 (pregnancy, childbirth, and puerperium)
- MDC 15 (newborns and other neonates)

### **MEASURE RESULTS UNDER CONTROL OF HEALTH CARE PROFESSIONALS, ORGANIZATIONS AND/OR POLICYMAKERS**

The measure results are somewhat or substantially under the control of the health care professionals, organizations and/or policymakers to whom the measure applies.

#### **NUMERATOR TIME WINDOW**

Fixed time period

#### **DATA SOURCE**

Administrative data

#### **LEVEL OF DETERMINATION OF QUALITY**

Does not apply to this measure

#### **OUTCOME TYPE**

Proxy for Outcome

#### **PRE-EXISTING INSTRUMENT USED**

Unspecified

### **Computation of the Measure**

#### **SCORING**

Count

#### **INTERPRETATION OF SCORE**

Better quality is associated with a higher score

#### **ALLOWANCE FOR PATIENT FACTORS**

Does not apply to this measure

#### **STANDARD OF COMPARISON**

External comparison at a point in time  
External comparison of time trends  
Internal time comparison  
Prescriptive standard

#### **PRESCRIPTIVE STANDARD**

Benchmark:

- Threshold 1: 6 or more procedures per year
- Threshold 2: 7 or more procedures per year

## **EVIDENCE FOR PRESCRIPTIVE STANDARD**

Dudley RA, Johansen KL, Brand R, Rennie DJ, Milstein A. Selective referral to high-volume hospitals: estimating potentially avoidable deaths. JAMA2000 Mar 1;283(9):1159-66. [PubMed](#)

Patti MG, Corvera CU, Glasgow RE, Way LW. A hospital's annual rate of esophagectomy influences the operative mortality rate. J Gastrointest Surg1998 Mar-Apr;2(2):186-92. [PubMed](#)

## **Evaluation of Measure Properties**

### **EXTENT OF MEASURE TESTING**

Each potential quality indicator was evaluated against the following six criteria, which were considered essential for determining the reliability and validity of a quality indicator: face validity, precision, minimum bias, construct validity, fosters real quality improvement, and application. The project team searched Medline for articles relating to each of these six areas of evaluation. Additionally, extensive empirical testing of all potential indicators was conducted using the 1995-97 Healthcare Cost and Utilization Project (HCUP) State Inpatient Databases (SID) and Nationwide Inpatient Sample (NIS) to determine precision, bias, and construct validity. Table 2 in the original measure documentation summarizes the results of the literature review and empirical evaluations on the Inpatient Quality Indicators. Refer to the original measure documentation for details.

### **EVIDENCE FOR RELIABILITY/VALIDITY TESTING**

AHRQ quality indicators. Guide to inpatient quality indicators: quality of care in hospitals - volume, mortality, and utilization [version 3.1]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2007 Mar 12. 91 p.

## **Identifying Information**

### **ORIGINAL TITLE**

Esophageal resection volume (IQI 1).

### **MEASURE COLLECTION**

[Agency for Healthcare Research and Quality \(AHRQ\) Quality Indicators](#)

### **MEASURE SET NAME**

[Agency for Healthcare Research and Quality \(AHRQ\) Inpatient Quality Indicators](#)

### **DEVELOPER**

Agency for Healthcare Research and Quality

**FUNDING SOURCE(S)**

Agency for Healthcare Research and Quality (AHRQ)

**COMPOSITION OF THE GROUP THAT DEVELOPED THE MEASURE**

The Agency for Healthcare Research and Quality (AHRQ) Quality Indicators are in the public domain and the specifications come from multiple sources, including the published and unpublished literature, users, researchers, and other organizations. AHRQ as an agency is responsible for the content of the indicators.

**FINANCIAL DISCLOSURES/OTHER POTENTIAL CONFLICTS OF INTEREST**

None

**ENDORSER**

National Quality Forum

**ADAPTATION**

Measure was not adapted from another source.

**RELEASE DATE**

2002 Jun

**REVISION DATE**

2008 Feb

**MEASURE STATUS**

This is the current release of the measure.

This measure updates previous versions:

- AHRQ quality indicators. Guide to inpatient quality indicators: quality of care in hospitals -- volume, mortality, and utilization [version 3.0]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2006 Feb 20. 99 p.
- AHRQ quality indicators. Inpatient quality indicators: technical specifications [version 3.1]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2007 Mar 12. 37 p.

**SOURCE(S)**



AHRQ quality indicators. Guide to inpatient quality indicators: quality of care in hospitals - volume, mortality, and utilization [version 3.1]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2007 Mar 12. 91 p.

AHRQ quality indicators. Inpatient quality indicators: technical specifications [version 3.2]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2008 Feb 29. 37 p.

## MEASURE AVAILABILITY

The individual measure, "Esophageal Resection Volume (IQI 1)," is published in "AHRQ Quality Indicators. Guide to Inpatient Quality Indicators: Quality of Care in Hospitals -- Volume, Mortality, and Utilization" and "AHRQ Quality Indicators. Inpatient Quality Indicators: Technical Specifications." These documents are available in Portable Document Format (PDF) from the [Inpatient Quality Indicators Download](#) page at the Agency for Healthcare Research and Quality (AHRQ) Quality Indicators Web site.

For more information, please contact the QI Support Team at [support@qualityindicators.ahrq.gov](mailto:support@qualityindicators.ahrq.gov).

## COMPANION DOCUMENTS

The following are available:

- AHRQ quality indicators. Inpatient quality indicators: software documentation, SAS [version 3.2]. 2008 Mar 10: Agency for Healthcare Research and Quality (AHRQ); 2008 Mar 10. 43 p. This document is available in Portable Document Format (PDF) from the [Agency for Healthcare Research and Quality \(AHRQ\) Quality Indicators Web site](#).
- AHRQ quality indicators. Software documentation: Windows [version 3.2]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2008 Mar 10. 99 p. This document is available in PDF from the [AHRQ Quality Indicators Web site](#).
- Inpatient quality indicators (IQI): covariates, version 3.1. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2007 Mar 12. 29 p. This document is available in PDF from the [AHRQ Quality Indicators Web site](#).
- Inpatient quality indicators (IQI): covariates (with POA), version 3.1. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2007 Mar 12. 29 p. This document is available in PDF from the [AHRQ Quality Indicators Web site](#).
- Remus D, Fraser I. Guidance for using the AHRQ quality indicators for hospital-level public reporting or payment. Rockville (MD): Agency for Healthcare Research and Quality; 2004 Aug. 24 p. This document is available in PDF from the [AHRQ Quality Indicators Web site](#).
- AHRQ summary statement on comparative hospital public reporting. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2005 Dec. 1 p. This document is available in PDF from the [AHRQ Quality Indicators Web site](#).
- Guidance for using the AHRQ quality indicators for public reporting or payment - appendix A: current uses of AHRQ quality indicators and considerations for hospital-level reporting. Rockville (MD): Agency for

- Healthcare Research and Quality (AHRQ); 2005 Dec. A1-13 p. This document is available in PDF from the [AHRQ Quality Indicators Web site](#).
- Guidance for using the AHRQ quality indicators for public reporting or payment - appendix B: public reporting evaluation framework--comparison of recommended evaluation criteria in five existing national frameworks. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2005 Dec. B1-4 p. This document is available in PDF from the [AHRQ Quality Indicators Web site](#).
  - AHRQ inpatient quality indicators - interpretive guide. Irving (TX): Dallas-Fort Worth Hospital Council Data Initiative; 2002 Aug 1. 9 p. This guide helps you to understand and interpret the results derived from the application of the Inpatient Quality Indicators software to your own data and is available in PDF from the [AHRQ Quality Indicators Web site](#).
  - UCSF-Stanford Evidence-based Practice Center. Davies GM, Geppert J, McClellan M, et al. Refinement of the HCUP quality indicators. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2001 May. 24 p. (Technical review; no. 4). This document is available in PDF from the [AHRQ Quality Indicators Web site](#).
  - HCUPnet. [internet]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2004 [accessed 2007 May 21]. [Various pagings]. HCUPnet is available from the [AHRQ Web site](#). See the related [QualityTools](#) summary.

## **NQMC STATUS**

This NQMC summary was completed by ECRI on August 19, 2004. The information was verified by the measure developer on October 13, 2004. This NQMC summary was updated by ECRI on March 4, 2005. The information was verified by the measure developer on April 22, 2005. This NQMC summary was updated again by ECRI Institute on August 17, 2006, on May 29, 2007, and again on October 20, 2008.

## **COPYRIGHT STATEMENT**

No copyright restrictions apply.

## **Disclaimer**

### **NQMC DISCLAIMER**

The National Quality Measures Clearinghouse™ (NQMC) does not develop, produce, approve, or endorse the measures represented on this site.

All measures summarized by NQMC and hosted on our site are produced under the auspices of medical specialty societies, relevant professional associations, public and private organizations, other government agencies, health care organizations or plans, individuals, and similar entities.

Measures represented on the NQMC Web site are submitted by measure developers, and are screened solely to determine that they meet the NQMC Inclusion Criteria which may be found at <http://www.qualitymeasures.ahrq.gov/about/inclusion.aspx>.

NQMC, AHRQ, and its contractor ECRI Institute make no warranties concerning the content or its reliability and/or validity of the quality measures and related materials represented on this site. The inclusion or hosting of measures in NQMC may not be used for advertising or commercial endorsement purposes.

Readers with questions regarding measure content are directed to contact the measure developer.

© 2008 National Quality Measures Clearinghouse

Date Modified: 11/24/2008

